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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 578,798	05/23/2000	Jaime Poris	M-8555 US	5190

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EXAMINER

CHOI, WILLIAM C

ART UNIT PAPER NUMBER

2873

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/578,798

Applicant(s)

PORIS, JAIME

Examiner

William C. Choi

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 14-19 is/are allowed.
- 6) ☐ Claim(s) 1-4 and 10 is/are rejected.
- 7) ☐ Claim(s) 5-9 and 11-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 5/23/2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

Receipt of the Information Disclosure Statements (IDS's), with the copies of the references cited therein, were received on May 17, 2001 and June 27, 2001. Initialized copies of the IDS's are enclosed with this office action.

### ***Drawings***

This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-4 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Johnson et al.

In regards to claim 1, Johnson et al discloses a method of measuring the dishing (column 17, lines 26-28) of a first feature (Figure 19b, "852") that is surrounded by a second feature (Figure 19b, "854") on a substrate (column 17, lines 40-42, Figure 19b, "864"), said method comprising: generating a set of calibration data (column 17, lines 43-48); measuring the height variation of said first feature on said substrate and correlating the height variation of said first feature with said calibration data to determine the amount of dishing of said first feature (column 17, lines 49-55).

Regarding claim 2, Johnson et al discloses wherein said measuring the height variation of said first feature is performed after a polishing process is used (column 17, lines 28-30).

Regarding claim 3, Johnson et al discloses wherein said first feature is a metal feature (column 17, lines 30-31) and second feature (column 17, line 31, Figure 19b, "854", re "field") that is inherently a dielectric material, this being reasonably assumed from Johnson et al disclosing dielectric materials and metals undergoing chemical mechanical polishing (column 1, lines 16-23) as well as Johnson et al disclosing "fields" in other embodiments being dielectric materials (column 2, lines 35-36 and column 3, lines 21-28, Figures 3 and 5, "134").

Regarding claim 4, Johnson et al discloses wherein said metal feature comprises at least one of copper, aluminum, and tungsten (column 14, lines 63-64).

Regarding claim 10, Johnson et al discloses wherein measuring the height variation of said first feature comprises utilizing at least one of a differential interferometer and a laser displacement sensor to measure the shape of the first feature (column 4, lines 1-26).

***Allowable Subject Matter***

Claims 14-19 are allowed.

Claims 5-9 and 11-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: in reference to the allowable claims, none of the prior art either alone or in combination disclose or teach of the claimed limitations to warrant a rejection under 35 USC 102 or 103.

The prior art fails to teach a combination of all the claimed features as presented in claims 5-9: a method of measuring the dishing wherein generating a set of calibration data comprises: providing a set of sample substrates having different values of first feature widths and producing calibration data by relating the measured dishing to different values of first feature widths.

The prior art fails to teach a combination of all the claimed features as presented in claims 11-13: a method of measuring the dishing wherein measuring the height variation of said first features comprises interpreting said height variation as the shape of said first feature, said correlating the height variation of said first feature with said calibration data comprises correlating said shape of said first feature with said calibration curves to determine the amount of dishing of said first feature.

The prior art fails to teach a combination of all the claimed features as presented in claims 14-16: a method of producing a set of calibration data to determine the amount of dishing comprising: providing at least one sample substrate having a plurality of first features surrounded by said second feature and specifically further wherein said first features have differing widths and said method comprises relating the magnitude of dishing to at least one of the first feature widths and the profile shape of the first features.

The prior art fails to teach a combination of all the claimed features as presented in claims 17-19: a method of measuring dishing in a first feature comprising: measuring the height variation of said first feature to determine the profile shape of said first feature and comparing said height variation of said first feature with pre-generated calibration data that relates the magnitude of dishing to the profile shape of a first feature.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hardy et al is being cited herein to embody many of the above

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indicated specifications in regards to materials, temperatures and processes with the exception of specific details that would warrant a rejection under 35 USC 102 or 103.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Choi whose telephone number is (703) 305-3100. The examiner can normally be reached on Monday-Friday from about 9:00 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (703) 308-4883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

W.C.C.

William Choi  
Patent Examiner  
Art Unit 2873  
July 29, 2002

